L 2274-66   EWT(m)/EPA(w)-2/EWA(m)-2   IJP(c)   GS
ACCESSION NR: AT5007943   UR/0000/64/000/000/0611/0615

AUTHOR: Glazov, A. A.; Dzhelepov, V. P.; Dmitriyevskiy, V. P.; Zamolodchikov, B.
I.; Kol'ga, V. V.; Kropin, A. A.; Onishchenko, L. M.; Shvabe, Yu. I.

TITLE: Effect of space charge on the free oscillation frequency of particles in an
isochronous cyclotron

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
Trudy. Moscow, Atomizdat, 1964, 611-615

TOPIC TAGS: high energy accelerator, space charge, cyclotron

ABSTRACT: Theoretical studies of the effect of space charge on the motion of par-
ticles in accelerators have been carried out in a number of works: Berestetskiy,
V. V.; Gol'din, L. L.; Koshkarev, D. T. *Pribory i tekhnika eksperimenta*, 3, 26
(1956); Dmitriyevskiy, V. P.; Zamolodchikov, B. I.; Kol'ga, V. V. *Doklad no konfe-
rentsii po tsiklotronam* (Report on the Cyclotron Conference), Gracow, 1960; Kolo-
menskiy, A. A.; Lebedev, A. N. *Atomnaya energiya*, 7, 549 (1959). To create strong-
current accelerators it is important to verify the theoretical conclusions with ac-
tual operating installations. The present work is concerned with the dependence of
the frequency of axial oscillations upon the density of the space charge of the ac-

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ACCESSION NR: AT5007943

celerated particles. Pertinent measurements were carried out on a cyclotron with spiral magnetic field for the specific case of molecular hydrogen ions accelerated up to the energy of 12 Mev (Vasilevskaya, D. P., et. al., *Atomnaya energiya*, 8, 189 (1960)). The results of the present work shows that the effect of the space charge does not prevent beam intensities of the order of several milliamperes in relativistic cyclotrons. A result of this space charge is the displacement of the zones of resonant interaction of the oscillations. Expressions are obtained which describe the effect of the space charge on the basis of linear equations for the free oscillations, taking account of the electromagnetic field of the accelerated particles. It is assumed that the particles in a condensed bunch are uniformly distributed along the azimuth and that the vertical size of the bunch is much smaller than the azimuthal extension. The main topics discussed are: (1) the density of the charged particles in a relativistic cyclotron and its influence upon the frequency of the axial oscillations; (2) measurement of the azimuthal extension of the bunch; (3) measurement of the frequency of the axial free oscillations; and (4) the limiting intensity of the internal beam in a relativistic cyclotron. Orig. art. has: 6 figures, 8 formulas.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Dubna (Joint Institute of Nuclear Research)

SUBMITTED: 28May64

ENCL: 00

SUB CODE: NP

NO REF SOV: 004

OTHER: 002

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L 4230-66   EWT(m)/EPA(w)-2/EWA(m)-2   IJP(c)   GS
ACCESSION NR: AT5007967   S/0000/64/000/000/0946/0949

AUTHOR: Glazov, A. A.; Kochkin, V. A.; Onishchenko, L. M.; Royfe, I. M.;
Semenov, N. M.; Tuzov, I. V.; Shvabe, Ye.

TITLE: High-frequency system of the 700-Mev cyclotron

SOURCE: International Conference on High Energy Accelerators. Dubna, 1963.
Trudy. Moscow, Atomizdat, 1964, 946-949

TOPIC TAGS: high energy accelerator, cyclotron, proton accelerator

ABSTRACT: The accelerating system of the 700-Mev cyclotron must ensure a regime
of continuous proton acceleration for a current at maximum radius up to 1 milli-
ampere. It is necessary here to have the maximum possible collection of energy of
the accelerated protons per revolution, with the restriction that the power of the
high-frequency supply to the accelerating electrodes be technically possible and
economically admissible. The configuration and structure of the region where the
particle acceleration occurs and the design of the accelerator electromagnet are
the determining factors in the selection of the scheme for the accelerating system.
The small height of the acceleration region, the absence of gap variation accord-

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ACCESSION NR: AT5007967

ing to azimuth, and insignificant variation according to radius ($2h_{min}$=146 mm, $2h_{max}$=220.4 mm) with maximum gap in the middle radii are the special features of the accelerator under consideration; namely, a high-field machine with small variation of the magnetic field strength and large spiral. A similar structure for the operating zone excludes the use of simple bulk resonators as accelerating systems even during operation at multiple frequencies of considerable multiplicity, because the vertical dimension of the resonator must amount to about one half of the wavelength of the accelerating voltage, and the period of revolution of a proton in the cyclotron field is 83.3 nanosecond ($f = 1/T = 12$ megahertz). It is also practically impossible to use a multi-electrode (three or more) accelerating system operating at multiple frequencies in the case of an effectively structured region where the acceleration of the protons occur. Even for operations at a frequency equal to twice the frequency of proton revolution, the radius of the accelerator turns out to be greater than a quarter of the wavelength of the accelerating voltage. Moreover it is hardly technically feasible to create a cantilever design more than three meters with supporting elements arranged in the small interpole gap, with rigid requirements upon the constancy and magnitude of the gap between the accelerating electrode and the chamber. A two-dee accelerating system with dees in

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ACCESSION NR: AT5007967

which the proton flight angle is close to 180° can be realized by various methods.
The Joint Institute of Nuclear Research and the Scientific Research Institute of
Electrophysical Apparatus have investigated theoretically and experimentally modi-
fications of the accelerating system with semicircular dees, which are closed in a
small part of the arch near the axis of symmetry, dees that are part of the
homogeneous rectangular line, and dees that are part of the rectangular line with
variable wave resistance. Of all the considered possibilities of accelerating sys-
tem design, the accelerating system in the form of the rectangular line with in-
creased wave resistance outside the gap of the electromagnet possesses the optimum
characteristics from the viewpoint of the magnitude of the losses, excitation, and
realization of the design. The accelerated system chosen is shown in the present
report to satisfy the requirements imposed upon it. The radio-engineering and
mechanical designs carried out at the mentioned two institutes and the modelling
of the various accelerating system elements point to the possibility of realizing
its design and construction and to the expediency of selecting the indicated
scheme and principal parameters. Orig. art. has: 3 figures.
ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy, Dubna (Joint Insti-
tute of Nuclear Research)

SUBMITTED: 26May64   ENCL: 00   SUB CODE: .., NP
NO REF SOV: 000   OTHER: 000

Card 3/3

ABRAMSON, Kh.I., inzh.; SHVABELAND, A.A., inzh.

Making boreholes with use of a pneumatic drill. Shakht.stroi.
no.10:6-7, 0 '57.   (MIRA 10:12)
                    (Boring machinery)   (Pneumatic tools)

SHVABENLAND, A.

New developments in the organisation of mining. Mast.ugl. 5 no.2:
7-8 F '56.   (MLRA 9:6)

1.Nachal'nik normativno-issledovatel'skoy stantsii Minuglestroya po
Karagandinskomu basseynu.
                (Mining engineering)

LIVSHITS, TS.A. [Livshyts, TS.A.], kand.med.nauk; ZEMTSOVA, N.O. ; FRANZHOLI,
    N.N.; SHVABOVSKIY, V.A. [Shvabovs'kyi, V.A.]

    Intraosseous drip infusion of saline solutions for infants. Ped.,
    akush. i gin. 19 no.3:28-29 '57.   (MIRA 13:1)

    1. L'vovskiy nauchno-issledovatel'skiy institut okhrany materinstva
    i detstva (direktor - I.D. Yashchuk) na baze Oblastnoy klinicheskoy
    bol'nitsy (glavnyy vrach - I.A. Karagodin).
                         (INJECTIONS, SALINE)

DONTSOV, P.M., kand.tekhn.nauk (g.Zhdanov); SHVACH, Ye.G., inzh. (g.Zhdanov)

A study of methods which provide increased strength and toughness of pipes. Stroi. truboprov. 7 no.10:10-13
O '62.
(MIRA 15:11)
(Pipe, Steel)

USSR / Solid State Physics / Phase Trans mations in Solid   E-6
                                                    Bodies

Abs Jour   : Ref Zhur - Fizika, No. 5, 1957 No. 11697

Author   : Krasil' shchikov, Z.I., Shvach, Ye. N.

Inst   : All-Union Machine-Building Extension Institute, USSR

Title   : Fractographic Method of Control of Heat Treatment.

Orig Pub   : Zavod. laboratoriya, 1956, 22, No. 9, 1056 - 1061

Abstract   : A procedure is detailed for the study of the structure of
              metals by controlling the fractures of specimens, subjected
              to mechanical tests. A panoramic method in fractography
              is considered. Methods of fractographic specimen inves-
              tigation are detailed for martensitic-sorbitic or sorbitic-
              pearlitic structures and for the structure of tempered marten-
              site and bainite. An investigation of the fractures can be

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USSR / Solid State Physics / Phase Transformations in Solid   E-6
Bodies

Abs Jour   : Ref Zhur - Fizika, No. 5, 1957 No. 11697

Abstract   : recommended for quality control of heat treatment. Here
it is advantageous to investigate not only the character of
the destruction, but also the structure of the crystalline
facets. From the structure of the crystalline facets in
the fractures it is possible to establish rapidly the cause
of brittleness failure. In the case of pearlite and
bainite brittleness, the failure passes through the grain
(trans-crystalline fracture), and in the case of tempered
brittleness and overheating, it passes over the boundaries
of the grain (intercrystalline fracture).

Card: 2/2

S H V A C H, V E N.

133-9-16/23

AUTHOR: Shmidt, N.V., Krasil'shchikov, Z.N., Pavlenko, N.T. and
           Shvach, Ye.N.

TITLE: Improvement of Mechanical Properties of Low Carbon Steel
           by Thermal Treatment. (Termicheskoye uprochneniye maloug-
           lerodistoy stali)

PERIODICAL: Stal', 1957, No.9, pp. 833 - 837 (USSR)

ABSTRACT: An investigation of thermal strengthening (rapid cooling
           in water) of 8 mm plate from MCt.3 steel (for railway tanks)
           is described. The composition of steel %: C 0.15, Mn 0.49,
           Si 0.23, S. 0.042, P 0.017, Cr 0.13, Ni 0.07, Cu 0.21.   The
           above investigation included: the determination of the optimum
           temperature of special heating for thermal strengthening
           (Table 1), the influence of annealing of thermally-strengthened
           steel, study of the tendency of thermally-strengthened steel
           to ageing and the determination of the strength of welded
           joints from strengthened steel. It was found that the optimum
           temperature of pre-heating lies within a range of 890-920 °C
           cooling with water spray for 40 sec (spraying of one side of
           plates is sufficient); annealing, if improvement in the plastic
           properties of steel is necessary, at 600 - 650 °C is sufficient
           (Fig.2); tendency to ageing of thermally-strengthened steel
           is decreased (Table 2) and mechanical properties of welded

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133-9-16/23

Improvement of Mechanical Properties of Low Carbon Steel by Thermal
Treatment.

joints are improved. A comparison of the microstructure of
untreated and treated steel is shown in Fig.1. The investi-
gation confirmed that thermal strengthening of low carbon steel
is advantageous. The following mechanical properties can be
obtained: $\sigma_s \geqslant 35$ kg/mm^2, $\sigma_B \geqslant 50$ kg/mm^2, $\delta \geqslant 14\%$,
$a_k \geqslant 3$ kg/cm^2 (at -20 $^{\circ}$C after ageing).

There are 2 tables, 3 figures and 6 references, 5 of which are
Slavic.

ASSOCIATION: Branch of the TsNII MSP SSSR

AVAILABLE: Library of Congress.
Card 2/2

32-8-30/61

AUTHORS

Krasil'shchikov,Z.N., Shvach,Ye.N.

TITLE

Employment of the Photometric Method in the Investigation
of Steel Fractures.
(Primeneniye fotometricheskogo metoda k izucheniyu izlomov
stali.)

PERIODICAL

Zavodskaya Laboratoriya, 1957, Vol. 23, Nr 8, pp.959-961
(USSR)

ABSTRACT

Two types of fractures are treated here: fibrous and
crystalline ones. On change of temperature a metal may
alternately show both types of fractures, but the formation
of the facets in a crystalline fracture depends on the
microstructural properties of the steel type. A proportionate
ligature may in both cases be obtained by the employment
of the photometric method, where the reflection properties
of the fracture are taken into account as the basis of
research works. The section of the paper entitled
"Evaluation of various types of brittleness by the photo-
metric method" describes an experiment of the examination
of a steel fracture. Microphotographs were taken in
1:200. As a result the formula

$$D_n = F_1 - E_1 + 100$$ is given, where D – signifies

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32-8-30/61

Employment of the Photometric Method in the Investigation
of Steel Fractures.

the proportional degree of deformation of the facets in
blackness units, F_1 and E_1 - corresponding characteristics
of the blackness degrees of the facet and the reference samp-
le of the positive. For negatives the formula is:

$D_n = E_2 - F_2 - 100$. A table on the deformation degrees of
the facets in various types pf brittleness and at various
temperatures is given. In the next section entitled "In-
vestigation of the fibrous fractures by means of the
phometric method" an example of experiments with two hardened
types of steel (at 280-300 kg/mm^2) is described. The result
shows that in one type the plastic deformation in blackness
units was assumed at 100°, in the other type - 80°. For
checking the fractures longitudinal filings were carried
out and prophilographs made. It was found that in the
first case the prophile was more wound and that in every
case it corresponded to the impact toughness value (for
A $\sim$ 11 and for B - 14 kgm/cm^2). On heating to 60^oC the
fracture remained fibrous in case A, in case B crystalline
points were discovered. The toughness of impact amounted

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32-8-30/61

Employment of the Photometric Method in the Investigation
of Steel Fractures.

to 9 resp. 10 kgm/cm^2. This method together with fracto-
graphy is used for the examination of brittle and tough
types of fractures.
(1 table).

ASSOCIATION: None given.
AVAILABLE: Library of Congress.

CARD 3/3

KRASIL'SHCHIKOV, Z.I., kand.tekhn.nauk; SHMIDT, N.V., kand.tekhn.nauk;
     SHVACH, Ye.N., inzh.

     High-pressure pipes made of heat-treated carbon steel. Stroi.
     truboprov. 3 no.9:10-14 S '58.   (MIRA 11:12)
                         (Pipe, Steel)

KRASIL'SHCHIKOV, Z.N., kand. tekhn. nauk; SHVACH, Ye.N., inzh.

New techniques for the heat treatment of low-alloy and
low-carbon steel castings. Sudostroenie 24 no.9:60-63
S '58.   (MIRA 11:11)
          (Steel--Heat treatment)

14(9,10)   SOV/95-59-4-3/12

AUTHORS: Krasil'shchikov, V.K., Shmidt, E.V., Kontsov, P.N., Candi-
                dates of Technical Sciences, Shvach, Ye.N., Pavlenko, N.T.,
                Nechepurenko, S.Ye., Engineers. (Zhdanov)

TITLE: Experimental Industrial Lot of Pipes Made From Thermically
                Hardened Carbon Steel * (Opytnaya promyshlennaya partiya
                trub iz termicheski uprochnennoy uglerodistoy stali)

PERIODICAL: Stroitel'stvo truboprovodov, 1959, Nr 4, pp 8-11, (USSR)

ABSTRACT: Welded pipes from thermically hardened carbon steel St.3
                (sp) were manufactured in accordance with "Temporary tech-
                nical conditions" approved by the Glavgaz USSR. The work
                has been carried out by a branch of TsNII GKS in cooperat
                with the welding laboratory of VNIIST in the Zhdanovskiy
                zavod imeni Il'icha (Zhdanov Plant imeni Il'ich). Steel
                sheets 6,300 x 1,750 x 8 mm were rolled from slabs on mill
                Trio-Lauta at a starting temperature of 1,250°C and a final
                temperature of 900-1,000°C. The chemical composition is
                shown in Table Nr 1. During the hardening process the
                sheets in packages of 6-10 sheets were placed in an oven
Card 1   having a temperature of up to 1,000°C and were heated to a

Experimental Industrial Lot of Pipes Made From Thermic... ...... Carbon Steel

temperature of 950 ± 10°C; each sheet .. . . in water during 1 minute in a vertical positi.. . . . tempering process consisted in the heating of each .. . .tely to a temperature of 540 ± 10°C during 20 ni... . .. sub-sequent cooling by air. In all tested sheets .. .. ten-sile strength was 50-60 kg/mm^2; yield point .. 35 kg/mm^2 and relative elongation (δ_5) over 15%; after .rtificial aging, toughness at a temperature of -10°C exceeded 3 m kg/cm^2; bending angle was 180°. Ratio of the yield point to temporary tensile strength was less than 0.8. After thermal treatment the sheets were subjected to cold dressing in a 7-roller mill during 5-7 minutes and bent to shape in a 4-roller mill, the bending process lasting from 3-5 minutes for each sheet. Automatic welding was done with electrode rods Sv10GS under flux OSTs-45 with a current of 38-44 v and 750-850 a. After welding the pipes were subjected to cold rolling during 3-5 minutes. Ends of pipes were cali-brated and chamfered. In this condition reception tests were made on 2 pipes of the same smelt, to determine mechanical properties of the welded joint and of the fused on metal;

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Experiment 1 Indu.tri. . . . . Prep. Thermic lly .ardened Carbon
Steel

results . . . . re . . . . in Table Nr 5. Values of tough-
ness under dynamic tests are shown in Table 4. At room
temperature the toughness is 0.5-14.0 m kg/cm². The lower
the temperature the lower the toughness and the greater the
morns of crystalline portions: at -40°C for instance the
fracture is almost entirely crystalline and the toughness
is 4.5-7.. m kg/cm². The fused on metal differs from basic
metal by a lower toughness under all temperatures. A con-
parative Graph Nr 1 shows the difference. . . . . . strength
between basic metal, fused on metal and metal in intermedi-
te zones. Chemical composition of fused on metal is shown
in Table Nr 5. At first it appeared as though welded,ther-
nically hardened carbon steel pipes should work out sligt-
ly more expensive than pipes from low-alloy steel of MK grade.
Successive improvements of thermal treatment will, ho. . r,
lower the cost of production of the pipes from St.5(sp) steel,
which will work out cheaper in the end than the pipes from

Card 3/4

COU T-T-4-3/12

Experiment.l I...st... lot of Pipes ... ..s Iro. Thermically ..r...ed Carbon
Steel

low- ... .K grade ....l. The industri..l tri l lot of 42
t... .f welded, thermi... l... hardened carbon steel pipes
,r..e. ..ir fitness for ... pre.sure g.. .n. oil pipe-
lin. .el.
. . ..b.e, 1 .r .b .nd . .icr photos..

C.r. .. .

SHVACH, Ye N

PHASE I BOOK EXPLOITATION   SOV/4923

Krasil'shchikov, Zal'man Naftal'yevich, Nikolay Vladimirovich Shmidt,
    Yevgeniy Nikolaevich Shvach, Nikolay Timofeyevich Pavlenko, and
    Stepan Yefimovich Nechepurenko

Termicheskoye uprochneniye nezakalivayushcheysya uglerodistoy stali
    (Thermal Strengthening of Nonhardenable Carbon Steel) Leningrad,
    Sudpromgiz, 1960. 146 p. 4,200 copies printed.

Scientific Ed.: G. I. Kapyrin; Ed.: R. D. Nikitina; Tech. Ed.:
    N. V. Erastova.

PURPOSE: This book is intended for technical and scientific personnel
    of metallurgical plants, scientific research organizations, and lab-
    oratories. It may also be useful to students in metallurgical in-
    stitutes and departments.

COVERAGE: The book reviews problems of attaining by thermal strengthen-
    ing significant improvement in the mechanical properties of that
    carbon steel which cannot be quench-hardened. The term "thermal
    strengthening" is used to distinguish this process from regular

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Thermal Strengthening (Cont.)   SOV/4923

heat treatment of hardenable steels. Experience in developing and
introducing the thermal strengthening of carbon steel is generalized.
The authors state that thermal strengthening increases the ultimate
strength and the yield point of carbon steel by 20-30%. As a result
of the use of thermally-strengthened carbon steel, the consumption
of steel in producing a given object is reduced 20% or more. The
authors acknowledge the contributions of P. M. Dontsov, Candidate
of Technical Sciences, A. S. Vladimirov and O. T. Vnukova, Engineers,
and G. A. Pashenko, and A. P. Rud', Senior Technicians, and thank
N. G. Gavrilenko, Engineer, for his help in organizing the experi-
mental investigations at a number of plants under actual working
conditions. There are 32 references: 26 Soviet and 6 German.

TABLE OF CONTENTS:

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S/095/60/000/006/001/001
A053/A129

1.1710

AUTHORS: Krasil'shchikov, Z.N., Candidate of Technical Sciences, Shvach, Ye. N., Nechepurenko, S.Ye., Engineers (Zhdanov city)

TITLE: Welded pipes of greater strength

PERIODICAL: Stroitel'stvo trub provodov, no. 6, 1960, 11 - 14

TEXT: In order to probe the effectiveness of the hardening thermic treatment, experimental pipes were produced from medium-carbon СУ (SU) steel, containing 0.26% of carbon and 1.05% of manganese, and from low-alloy steel of 14ХГС (14KhGS) grade containing 0.14% carbon, 1.25% manganese, 0.54% silicon and 0.64% chrome. Maximum hardening effect was obtained after tempering in water with austenitic temperature of 920 ± 10°C. The strength of hardened steel greatly decreases from a tempering temperature of 500°C during 0.5 hours, while plasticity and toughness considerably increase. A good combination of mechanical properties in medium-carbon steel is obtained with a tempering temperature of 670°C, resulting in a yield point of 59-61 kg/mm², a tensile strength of 70 kg/mm², a relative elongation exceeding 20%, a relative contraction of cross section exceeding 55% and a toughness of 5.5-6.5 kgm/cm² at temperatures between +20°C and -40°C. Low-

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S/095/60/000/006/001/001
A053/A129

Welded pipes of greater strength

alloy steel 14KhGS in the tempered state at equal plasticity and toughness has a slightly lower tensile strength in comparison with medium-carbon steel. Supplementary tests were conducted at the Khartsyzskiy zavod (Khartsyz Plant) using 680-720 mm pipes with a wall thickness of 10 mm. Steel was thermically treated in sheets prior to being processed and after being processed as finished pipes. The micro-structure of the medium-carbon steel after tempering and annealing consisted of sorbite and a very small amount of ferrite, whereas in 14KhGS steel structural-free ferrite existed in larger quantities. The article gives in detail the results of the supplementary tests. The yield point for both brands of steel exceeded 41 kg/mm^2, but the tensile strength was above 60kg/mm^2. In both cases bending at 180° was possible without showing cracks; toughness at +20°C exceeded 6 kgm/cm^2; at -70°C toughness of 14KhGS steel lies between 3-6.5 kgm/cm^2 and of SU steel within the limits of 3.5-7.5 kgm/cm^2. Crystalline sections appear in fractures of 14KhGS steel at -20°C and in SU steel at -40°C. Investigations of toughness of thermically treated and subsequently aged samples revealed that mechanical aging somewhat lowers the toughness, but maintains it at a high level; even at -70°C toughness exceeds 3.5 kgm/cm^2. Thermic aging does not interfere with the toughness, but the combination of mechanical and thermic aging is apt to lower toughness of steel most especially in the low-alloy steel of 14KhGS grade. Tests revealed that the strength

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S/095/60/000/006/001/001
A053/A129

Welded pipes of greater strength

of welded pipe joints of medium-carbon steel after thermic treatment was not be-
low 60 kg/mm^2 and in case of low-alloy 14KhGS steel between 56 and 60 kg/mm^2.
Toughness of the metal of the welded seam is for both grades within the zone of
thermic treatment within 9-13 kgm/cm^2 at +20°C and 7-10 kgm/cm^2 at -40°C. On the basis
of results of tests the authors draw the following conclusions: Medium-carbon
and low-alloy steel (SU and 14KhGS) can be used after thermic treatment to produce
pipes with a yield point exceeding 40 kg/mm^2 and with a tensile strength of 55-
60 kg/mm^2. In view of mechanical properties of pipes and technological considera-
tions preference should be given to production of pipes from hot-rolled sheets
with subsequent thermic treatment. The utilization of medium-carbon and low-
alloy steels for the production of large-diameter welded pipes in a thermically
hardened state will reduce steel consumption in pipelines working at high pres-
sure. There are 3 tables, 2 graphs and 2 photographs.

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18 8 200

5 5330

21396
S/032/61/027/012/009/015
B104/B108

AUTHORS: Krasil'shchikov, Z. N., and Shvach, Ye. N.

TITLE: Investigation of the impact strength of steel by tensile testing

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 12, 1961, 1505 - 1509

TEXT: Fracture tests were conducted with an МИМ-6 (MIM-6) microscope on Cr-Ni-Mo, Cr-Mn-Mo, and carbon steels. The minimum, maximum, and mean linear dimensions of the crystal facets, as well as the crystallinity coefficient of the fracture surface were determined. All facets within the visual field of the microscope were measured for the determination of their mean linear dimensions. The crystallinity coefficient was cal-

culated from $f = \dfrac{l_{mean}^2 \cdot N}{S} \cdot 100$, where l_{mean} is the mean linear dimension of the facets in a given field of view in μ, and S is the surface area of the field of view, in μ^2. The results of the fracture analysis depend on

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S/032/61/027/012/009/015
Investigation of the impact strength ...   B104/B108

the magnifying power of the microscope. At different strengths of the
specimens, an identical structure of the fractures   corresponds to
different impact strengths. The estimation of the impact strength from
the fracture must therefore be made bearing in mind the strength (hardness).
The impact strength of specimens of equal strength decreases continuously
with increasing dimension of the facets. The results show that for every
steel brand nomograms can be drawn up for determining its impact strength
from the hardness and structure of the fracture. There are 3 figures,
2 tables, and 4 Soviet references.

Card 2/2

AUTHOR: Krasil'shchikov, Z. N., Candidate of Technical Sciences, Nechepurenko, S. E., Engineer, and Shvach, E. N., Engineer (Zhdanov)

TITLE: Investigation of heat-treated carbon-steel pipes

PERIODICAL: Stroitel'stvo truborovodov, No. 2, 1962, 12–14

TEXT: Heat-treated St.3(Sp) carbon steel pipes were studied to determine whether St. 3(Sp) carbon steel could replace low-alloyed steel in the manufacture of gas- and oil pipes. The physical properties of the base metal and the welds of an experimental batch of 41 pipes were investigated. The tensile properties, impact strength and ductility in both base metal and welding seams were satisfactory. The pipes were also subjected to hydrostatic tests. The macrostructure and hardness of the welds yielded satisfactory results. Application of heat-treated carbon steel in the manufacture of high-test line pipe is justified from both the technical and the economic standpoints. There are 4 figures and 4 tables.

Card 1/1

DONTSOV, P.M.; SHVACH, Ye.N.

Efficient methods of hardening low-alloy and low-carbon steel.
Stal' 22 no.2:165-167 F '62.   (MIRA 15:2)
(Steel alloys—Hardening)

SHMIDT, N.V.; DONTSOV, P.M.; KRASIL'NIKOV, Z.N.; SHVACH, Ye.N.;
        OVSYANNIKOV, I.I.

Heat treated carbon steel for shipbuilding.   Sudostroenie 28
no.9:44-48 S '62.   (MIRA 15:10)
        (Plates, Iron and steel--Testing) (Shipbuilding)

SHVACHINSKIY, P. N.; DORIN, YU. A. i PICTROVSKIY, K. B.; MILLYER, F.

29691

Tyekhologiya izgotovlyeniya gipsovykh Form v Kyeramikye.

Styeklo i Kyeramika, 1949, No 8, s. 20-23

3. Ryezinovaya Promyshlyennost'

Trudy akadyemika S.V.Lyebyedyeva v oblasti sintyetichyeskogo kauchuka-sm. 29541

Dvustoronnyaya vulkanizatsiya avtopokryshyek s Primyenyeniyem Elyektromanzhyet-sm. 29851

11. Lyesozagotovki Lesnaya i Dyeryeroobrabatyvayu-shaya Promyshlyennost'.

Myebyel'noye Proizvodstvo

SO:LETOPIS' NO. 40

SHVACHINSKIY, P.N.
BCS

Manufacturing Processes
twining, Rep., Shaping

248. Casting heavy materials very under pressure. P. N. SHVACHINSKIY (Sach. Kovan. 8, No. 7, 19, 1951). In Russian plants mercury and other materials and fixtures were is normally cast in separate moulds. The author recommends a piping system for casting articles in series under pressure, regardless of the shape of the plaster mould. The method avoids difficulties arising in the normal casting of battery casting process owing to varying shapes of articles (e.g. moulds for every solution casting...) for casting batteries). The second advantage of the method is the pressure used for casting, which will make it possible to render the filling and casting operations automatic. The method will also allow a series filling of batteries which are now filled separately. The harmful effect of the impact of the stream of clip against the surface of the plaster mould (called "casting spot") is avoided with this method, since moulds are filled under pressure from below. The piping system is described." (5 figs.)

ACC NR: AR6019069   SOURCE CODE: UR/0274/66/000/001/A035/A036

AUTHOR: Tokar', S. Ye.; Shvachka, N. F.

TITLE: Noise in train radio communication in areas using alternating current as the motive force for trains

SOURCE: Ref. zh. Radiotekhnika i elekrosvyaz', Abs. 1A238

REF SOURCE: Tr. Khar'kovsk. in-ta inzh. zh.-d. trans., vyp. 72, 1965, 73-76

TOPIC TAGS: radio-noise, radio communication

TRANSLATION: The results of studying train radio communications at the Pantayevka and Koristovka stations on the Odessa-Kisheneva Railroad are presented; the alternating current potential was 27 kv and the locomotive involved was electric locomotive WL 60. During the summer, the potential of interference was measured by instrument IP-12M at the train radio communication frequency of the experimental sector (2.586 MHz). When stationary radio station Zh-3 was hooked in to the terminal of reversed current, the noise potential was 300-400 µ, and when connected to a sloping beam type antenna the noise potential dropped to 150 µ; when connected to the locomotive antenna, it was 200-250 µ. The analysis of obtained results are included. 6 illustrations. I. D.

SUB CODE: 17,09

                                        UDC: 621.396.931

Card 1/1

SOV/133-59-4-20/32

AUTHORS: Beloruchev, L.V., Candidate of Technical Sciences, and
             Shvachkin, A.K., Engineer

TITLE: Protective Atmospheres from Technical Nitrogen for
             Thermal Treatment of Steel (Zashchitnyye atmosfery
             iz tekhnicheskogo azota dlya termicheskoy obrabotki
             stali)

PERIODICAL: Stal', 1959, Nr 4, pp 354-360 (USSR)

ABSTRACT: The use of technical nitrogen, obtained from oxygen
             producing plants, for protective atmospheres for thermal
             treatment of steel is discussed. Two methods of
             purification of nitrogen from the residual oxygen are
             proposed: the use of liquid ammonia and charcoal
             generator. Technological scheme for the production of
             protective atmosphere from nitrogen with 4 to 10% of
             hydrogen dried to -40° dew point, of an output 200 m^3/hr
             designed by Giprometiz is shown in Fig 1. As a source of
             hydrogen, combining residual oxygen and entering into the
             composition of protective gas, liquid ammonia is used.
             Ammonia is dissociated at 900°C over a catalyst. The
             final removal of oxygen is done over a palladium catalyst
             (Fig 5). The cheapest method of the production of

Card 1/2

SOV/133-59-4-20/32

Protective Atmospheres from Technical Nitrogen for Thermal
Treatment of Steel

protective atmosphere is by passing technical nitrogen
through a retort with incandescent charcoal ($900^{\circ}C$).
The scheme of the plants for this purpose designed by
Stal'proyekt is shown in figures 6 and 7. Approximate
costs of various protective atmospheres are compared in
the table. There are 7 figures and 1 table.

ASSOCIATION: Giprometiz

Card 2/2

SHVACHKIN, B.I.

Introducing a multiple-purpose copying milling machine with
a pantograph. Biul. tekh.-ekon. inform. Gos. nauch.-issl.
inst. nauch. i tekh. inform. 18 no.3:29-30 Mr '65.

(MIRA 18:5)

J.

USSR/Soil Science - Soil Biology

Abs Jour   : Ref Zhur - Biol., No 4, 1958, 15300

Author   : D.D. Shvachkin
Inst   : -
Title   : The Dynamics of the Decomposition of Coniferous Forest Litter and of Humus Accumulation in Carbonate and Non-Carbonate Soils. (Dinamika razlozheniya khvoynoy lesnoy podstilki i nakopleniya peregnoya v karbonatnoy i beskarbonatnoy pochvakh).

Orig Pub   : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1956, vyp. 22, 289-295

Abstract   : It was revealed in experiments on the decomposition of coniferous litter under various conditions of moisture for 90 days at 20-22° that cell decomposition was most active (a contraction of 42%) under conditions of op-timal moisture which corresponded to 60% of the

Card 1/3

J.

USSR/Soil Science - Soil Biology

Abs Jour : Ref Zhur - Biol., No 4, 1958, 15300

moisture capacity of the vegetable residue. Under conditions of excess moisture (more than 100% of its moisture capacity) cell decomposition was 17%, and under variable conditions where the moisture shifted every 10 days from the optimum to excessive, it was 8.3%. The amount of albumin was reduced under all conditions of moisture, but it reached its highest degree under excessive moisture. Lignin with optimum moisture underwent insifnificant change, although under variable conditions its quantity was reduced by more than 10%. With excessive and variable moisture its loss through alkalinization ran to 52-54%. Humus formation took place as pine needles decomposed in variable moisture conditions and its quantity doubled as compared with the outset. The total N in non-carbonate soil humus was found to be 38-40% and in carbonate soil it was 11-14%. Soil acidity remained unchanged in optimum

Card 2/3

3/

L 11447-65   EWT(d)/FBD/FSF(h)/FSS-2/EWT(l)/EEC(k)-2/EWG(v)/EWA(d)/EEC-4/
EEC(t)/EEC(c)-2   Pd-1/Pe-5/Ph-4/P1-4/P1-4/Pn-4/Po-4/Pq-4/Pac-4/Pae-2/Pb-4
AFETR/RAEM(a)   TT/GG/GW/WS/AST   S/0109/64/009/010/1735/1739   (B)
ACCESSION NR: AP4046671

AUTHOR: Kolosov, M. A.; Yakovlev, O. I.; Yefimov, A. I.; Shvachkin, K. M.;
Rozgon, Yu. K.

TITLE: Meter-wave propagation in interplanetary space

SOURCE: Radiotekhnika i elektronika, v. 9, no. 10, 1964, 1735-1739

TOPIC TAGS: interplanetary space, meter wave, meter wave propagation, radio
wave propagation

ABSTRACT: The results of an investigation of 183.6-Mc radio-wave propagation
are reported and compared with some published data. The level of a signal
received from Mars-1 artificial object was determined by comparing it with the
received noise. The latter was measured by means of a calibrated noise
generator and also by a comparison with the r-f radiation coming from
Cassiopeia-A. Although the measurements within the 26-50-million-km range

Card 1/2

L 11447-65
ACCESSION NR: AP4046671

were not reliable, the maximum possible attenuation is estimated as 4 ± 2 db over a 50-million-km distance in interplanetary space. A comparison of these primary results with other American, British, and Soviet published data brings about these conclusions: (1) The meter-band radiowave attenuation over 50 million km is 2—4 db or lower; (2) Interplanetary space may cause interference-type fading; (3) Widening of the signal spectrum is 2×10^{-9} or less; (4) Some data indicates that a solar activity influence on a received-signal level and on radar ranging is possible. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 05May64   ENCL: 00

SUB CODE: EC, AA   NO REF SOV: 003   OTHER: 010

Card 2/2

L 22608-66   FBD/EWT(1)   GW/WS-2

ACC NR: AP6011441   SOURCE CODE: UR/0109/66/011/004/061;/0622

AUTHOR: Yakovlev, O. I.; Yefimov, A. I.; Shvachkin, K. M.

ORG: none

TITLE: Attenuation of radio waves in interplanetary space and in the vicinity
of the Sun

SOURCE: Radiotekhnika i elektronika, v. 11, no. 4, 1966, 617-622

TOPIC TAGS: radio wave absorption, radio wave propagation, space communi-
cation

ABSTRACT: A study of attenuation of meter-band radio waves in interplanetary space
and in the vicinity of the Sun is discussed. A method of precise measurements of
radio emission from radio source Taurus-A was employed. The measurements were made
from March through December 1964 at 184 Mc and various values of angle ψ. The band-
width of the antenna radiation pattern permitted measurements at $\psi \geq 5°$. On the
basis of the measurements, the following conclusions were reached: 1) There is no
attenuation (within limits of $\pm 5\%$) in the propagation of radio waves with a continu-
ous spectrum at the 1.6-m band for a distance of 3×10^8 km when the energy beam
propagates at a distance of 2.5×10^7 km from the Sun. 2) Little attenuation was
observed during the propagation of radio waves with a continuous spectrum at the 11-,
3.5-, and 1.6-m bands through all the interplanetary space within the Earth's orbit

Card 1/2   UDC: 621.371.191/.192:523.164.3

L 22608-66

ACC NR: AP6011441   ◯

when the energy beam propagates at a distance of 1.3 x 10^7 km from the Sun.
3) During the propagation of monochromatic radio waves at the meter band in inter-
planetary space and in the vicinity of the sun a change in the spectrum could be
observed which leads to the development of apparent attenuation during reception
by a narrow-band receiver. Orig. art. has: 2 figures, 9 formulas, and 1 table.
                                                                        [GS]

SUB CODE: 17/ SUBM DATE: 26Jan65/ ORIG REF: 008/ OTH REF: 013/ ATD PRESS:
                                                                        4228

Card   2/2 Hw

SHVACHKIN, N. Kh.

Mbr. Moscow Inst. Psychology, Acac. Pedagogical Sci. RSFSR, -1949-. "Development of
the Perception of Vocal Sounds and Otology," Vest. Oto-rino-laringol. No. 2, 1949.

SHVACHKIN, YU. P.

C.A. V-48
Jan 10, 1954
Organic Chemistry

Synthesis of pyrimidoimidazolones. M. A. Prokof'ev, E. G. Antonovich, and Yu. P. Shvachkin (M. V. Lomonosov State Univ., Moscow). Doklady Akad. Nauk S.S.S.R. 87, 783-5(1952).—Addn. of 2 g. 2-amino-4-hydroxy-6-methylpyrimidine to 4.6 g. (MeCHBrCO)₂O in CHCl₃ and heating 5 hrs. at 80-90° gave 59% 2-bromopropionylamino-4-hydroxy-6-methylpyrimidine, m. 170° (from MeOH or H₂O). To 1.84 g. Na in 50 ml. MeOH was added 2.34 g. guanidoacetic acid, followed by 5.2 g. AcCH₂CO₂Et and the mixt. refluxed 20 hrs., concd., washed with Et₂O, taken up in 5% HCl (pH 1) gave 18.2% 4-oxo-6-methylpyrimidino-2,3:2',3'-dihydroimidazol-5'-one, m. 310° (from H₂O); acidification of the filtrate to pH 5 gave 29.7% (2-amino-4-oxo-6-methyl-3-pyrimidyl)acetic acid, m. 240-1°. Heating α-guanidopropionic acid with AcCH₂CO₂Et as above 12 hrs. at 120° gave 25% 4-oxo-6-methylpyrimidino-2,3:2',3'-dihydro-4'-methylimidazol-5'-one (I), decomp. 283°; if run at reflux in EtOH the yield drops to 10% but acidification of the soln. to pH 3 yields 23% α-(2-amino-4-oxo-6-methyl-3-pyrimidyl)propionic acid, m. 227°. Letting 1.4 g. 2-bromopropionylamino-4-hydroxy-6-methylpyrimidine stand 35 hrs. with 30 ml. liq. NH₃ yields 28.5% I. Boiled with 25% HCl it yields 45% amino-N (VanSlyke) in 160 hrs., and 73% in 307 hrs. Similarly, liq. NH₃ and 2-(2-bromobutyrylamino)-4-hydroxy-6-methylpyrimidine gave 25% 4-oxo-6-methylpyrimidino-2,3:2',3'-dihydro-4'-ethylimidazol-5'-one, m. 213° (from H₂O). Refluxing 1.59 g. α-guanidoisovaleric acid with 0.92 g. Na in 30 ml. EtOH with addn. of 6.5 g. AcCH₂CO₂Et and boiling the mixt. 8 hrs. gave 25% α-(2-amino-4-oxo-6-methyl-3-pyrimidyl)isovaleric acid, m. 185° (from H₂O).

G. M. Kosolapoff

SHVACHKIN. YU. P.

USSR/Chemistry

Card	:	1/1
Authors	:	Prokofyev, M. A., and Shvachkin, Yu. P.
Title	:	Synthesis of Pyrimidineimidoazolones
Periodical	:	Zhur. Ob. Khim., 24, Ed. 6, 1046 - 1049, June 1954

Abstract   : Experiments showed that lactam of guanidoscetic acid will enter into a condensation reaction with compounds of the acetoacetic and malonic esters type, yielding homologous pyrimidine-2, 3 : 2, '3'-dihydroimidoszolones-5'. It was established, that the compound obtained, possesses acid properties and the acidity of the compound increases, with the increase in the number of oxo-groups in the pyridine cycle. Three references.

Institution : The State. University, Moscow

Submitted   : December 19, 1953

SHVACHKIN, Yu. P.

'V Pyrimidinoimidazolone series. II. Synthesis of pyrim-
idinoimidazolones based on the lactam of β-guanidinopro-
pionic acid. M. A. Prokof'ev and Yu. P. Shvachkin (Mos-
cow State Univ.). Zhur. Obshchel Khim. 25, 976-80 (1955);
cf. C.A. 49, 0001a.—To 1.38 g. Na in 50 ml. abs. EtOH was

added 1.5 g. MeCH.CO.NH.C(:NH).NH.HCl (I) and the
mixt. was stirred 10 min. then heated to reflux and treated
dropwise with 6.7 g. AcCH₂CO₂Et and refluxed 5 hrs. longer;
after evapn. *in vacuo* and treatment with 5% HCl to pro-
duce pH 4, there was obtained a ppt. of 52.5% *4-oxo-4',6-di-
methyl-2,3-dihydropyrimidino-2,3:2',3'-imidazolidin-5'-one*,
C₁H₁N₃O₂ (II), decomp. 282° (from H₂O), which reacts with 1
mole of base. Similarly, AcCHEtCO₂Et gave 50.7% *5-Et
deriv.* of II, m. 263° (from EtOH); AcCHBuCO₂Et (III) gave
32.8% *5-Bu deriv.* of II, m. 229° (from EtOH). The re-

action, conducted similarly, between III and CH₃.CO.-
NH.C(:NH).NH (IV) gave 28% *4-oxo-6-methyl-5-butyl-
2,3-dihydropyrimidino-2,3:2',3'-imidazolidin-5-one*, m. 252°
(from EtOH). I and CH₂(CO₂Et)₂ similarly gave 58% *4,6-
dioxotetrahydropyrimidino-2,3:2',3'-(4-methyl)dihydroimi-
dazol-5-one*, m. 225° (from H₂O), which reacts with 1.5 moles
of base. I and EtCH(CO₂Et)₂ gave 59.8% *4,6-dioxo-5-
ethyl-4'-methyl-3,4,5,6-tetrahydropyrimidino-2,3:2',3'-
imidazolidin-5'-one*, decomp. 290-1° (from H₂O), which re-
acts with 1.2 moles of base. I and BuCH(CO₂Et)₂ gave
70.5% *4,6-dioxo-5-butyl-4'-methyl-3,4,5,6-tetrahydropyrimi-
dino-2,3:2',3'-imidazolidin-5'-one*, m. 229°, which reacts
with 1.2 moles of base. IV and PhCH(CO₂Et)₂ gave 53.9%
*4,6-dioxo-5-phenyl-3,4,5,6-tetrahydropyrimidino-2,3:3',3'-
imidazolidin-5'-one*, decomp. (from H₂O), which re-
acts with 1.4 moles of base.   G. M. Kosolapoff

SHVACHKIN YU. P.

Synthesis of hydropyrimidine-N-alkylcarboxylic acids.
M. A. Prokof'ev and Yu. P. Shvachkin Gen. Chem.
U.S.S.R. 25, 1165-8 (1955)(Engl. Translation). CH
50, 3457. See C.A.
B. M. B.

PROKOF'YEV,M.A.; SHVACHKIN,Yu.P.

Synthesis of pyrimidine-(N)-alkyl carboxylic acids.   Zhur.ob.khim.
25 no.6:1218-1222 Je '55.   (MLRA 8:12)

1. Moskovskiy Gosudarstvennyy universitet
          (Pyrimidinecarboxylic acid)

SHVACHKIN, Yu. F.; PROKOF'YEV, M.A.

Pyrimidineimidazolones. Part 3. Preparation of salts and alkylation
of pyrimidineimidazolones. Zhur.ob.khim. 26 no.12:3416-3421 D '56.
(MLRA 10:7)

1. Moskovskiy gosudarstvennyy universitet.
(Imidazolones)

PROKOF'YEV, M.A.; ANTONOVICH, Ye.G.; SHVACHKIN, Yu.P.

Pyrimidinimidazolones. Part 4: Absorption spectra of pyrimidinim pyrimidinimidazolones in the ultraviolet region. Vest.Mosk.un. Ser.mat.,mekh.,astron.,fiz., khim. 12 no.3:199-209 '57.

(MIRA 11:3)

1.Laboratoriya khimii belka imeni akad. N.D. Moskovskogo gosudarstvennogo universiteta.
            (Imidazolone--Spectra)

SHVACHKIN, Y. P

SHVACHKIN, Y. P. (Moskva).

Synthesis of heterocyclic condensed pyrimidine systems. Usp.Khim.
26 no.7:824-855 Jl '57.
(Systems (Chemistry)) (Pyrimidine)

(MIRA 10:8)

SHVACHKIN, Yu.P. [translator]; STEPANENKO, B.N., red.

Phosphates of carbohydrates (from "Quart.Revs." 71, 61-85, 1957)
A.G. Foster, U.G. Overend. Usp. khim. 27. no.7:891-914 Jl '58.
(MIRA 11:9)

(Carbonydrates)   (Phosphates)
(Foster, A.G.)   (Overend, U.G.)

SOV/79-28-6-41/63

AUTHORS: Shvachkin, Yu. ., Prokof'yev, M. A.

TITLE: The Synthesis of Phosphorylaminopyrimidines (Sintez fosforil-aminopirimidinov)

ABSTRACT: There are no data in papers concerning phosphorylated amino-pyrimidines, but compounds of similar type are of great theoretical and practical interest: theoretically this is the case, with respect to the problem concerning the char-acter of the intranucleotide compounds in the macromolecules of nucleic acids, and practically in the biological sense. It is not impossible that the biological activities of these compounds may be compared with those of phosphorylated oxy-pyrimidines among which highly effective insecticides causing no harm to warm blooded animals can be found (Refs 1, 2). In the present paper the synthesis of some 2-phosphorylamino-pyrimidines is described, which is based on the condensation of the diphenylester of the guanidinephosphoric acid with

Card 1/3

The Synthesis of Phosphorylaminopyrimidines   SOV/79-28-6-41/63

compounds of the type of acetoacetic ester and malonic acid
ester. Acetoacetic ester is condensed with diphenylphosphoryl-
guanidine on heating in alcohol solution in the presence of
sodiumalcoholate accompanied by the formation of 2-diphenyl-
phosphorylamino-4-oxy-6-methylpyrimidine (I) according to
scheme 1. The malonic acid ester and its homologues condense
with diphenylphosphorylguanidine on the same conditions to
the corresponding 2-diphenyl-phosphorylamino-4,6-dioxypyri-
midines (scheme 2). The compounds obtained are colorless
crystalline products having high melting points; they are
easily soluble in alcohols and difficult to solve in water.
Thus, a method for the synthesis of 2-phosphorylaminopyri-
midines is suggested which is based on the condensation of
phosphorylated guanidines with β-dicarbonyl compounds. The
following compounds which are not described in papers were
synthetized: 2-diphenylphosphorylamino-4-oxy-6-methylpyrimi-
dine, 2-diphenylphosphorylamino-4,6-dioxypyrimidine, 2-
-diphenylphosphorylamino-4,6-dioxy-5-methylpyrimidine and
2-diphenylphosphorylamino-4,6-dioxy-5—ethylpyrimidine. The
hydrolysis of the synthetized compounds was investigated.
There are 10 references, 3 of which are Soviet.

Card 2/3

The Synthesis of Phosphorylaminopyrimidines   SOV/79-28-6-41/63

ASSOCIATION: Moskovskiy gosudarstvennyy universitat
                (Moscow State University)

SUBMITTED: May 19, 1957

               1. Pyrimidines--Synthesis

Card 3/3

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; PROKOF'YEV, M.A.

Synthesis of amino acid derivatives of the adenosine-2'-phosphoric
acid series. Zhur.ob.khim. 30 no.8:2462-2466 Ag '60.

(MIRA 13:8)

1. Moskovskiy gosudarstvennyy universitet.
        (Amino acids)
        (Adenosinephosphoric acid)

SHVACHKIN, Yu. P.; AZAROVA, M. T.

Possibility of converting acyclic amino acids to pyrimidine
derivatives. Vest. Mosk. un. Ser. 2: Khim. 16 [i.e.17], no.6:
71-72 N-D '62.
(MIRA 16:1)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

(Amino acids)   (Pyrimidine)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.

Re-esterfication reactions in the synthesis of α-(pyrimidylmethyl)-α-acetylaminomalonic esters. Vest.Mosk.Un.Ser.2. khim. 16 no.6:75-76 N-D '61.   (MIRA 14:11)

1. Kafedra organicheskoy khimii Moskovskogo gosudarstvennogo universiteta.
         (Malonic acid)   (Esterification)

SHVACHKIN, Yu.P.; AZAROVA, M.T.; PROKOF'YEV, M.A.

        Derivatives of adenosine-2'-phosphoamino acid. Zhur.ob.khim.
        31 no.7:2107-2112 Jl '61.   (MIRA 14:7)

        1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
            (Adenosine phosphate) (Amino acids)

SHVACHKIN, Yu.P.; AZAROVA, M.T.; PROKOF'YEV, M.A.

Formation of cyclophosphate in the adenosine-2'-phosphoamide
series. Zhur.ob.khim. 31 no.7:2112-2114 Jl '61.   (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
          (Adenosine phosphate) (Amino acids)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; SAVEL'YEV, V.L.

Synthesis of α-pyrimidylmethyl-α-formylaminomalonic esters.
Vest.Mosk. un. Ser.2:khim. 17 no.1:73-74 Ja-F '62. (MIRA 15:1)

1. Moskovskiy gosudarstvennyy universitet, kafedra organicheskoy khimii.
                (Malonic acid)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.

Synthesis of   -(4-hydroxy-6-methyl-2-pyrimidinyl)-alanine. Vest.
Mosk.un.Ser.2: Khim. 17 no.2:76-77 Mr-Ap '62.   (MIRA 15:4)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
          (Pyrimidinealanine)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; BERESTENKO, M.K.; PROKOF'YEV, M.A.

> Directions of the clevage of pyrimidyl-4-malonic esters. Zhur.
> ob.khim. 32 no.6:2060-2061 Je '62.   (MIRA 15:6)

> 1. Moskovskiy gosudatstvennyy universitet im.M.V.Lomonosova.
>   (Malonic acid)

SHVACHKIN, Yu.P.; BERESTENKO, M.K.

Reactions of nucleophilic displacement in the synthesis of N-(4-pyrimidyl)-amino acids and their derivatives. Zhur.ob.khim. 32 no.5:1712-1713 My '62.   (MIRA 15:5)

1. Moskovskiy gosudarstvennyy universitet.
        (Amino acids)   (Substitution (Chemistry))

SHVACHKIN, Yu.P.; AZAROVA, M.T.

Preparation of willardine from albizziine. Zhur.ob.khim.
32 no.10:3448-3449 O '62.   (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet.
        (Willardine)   (Albizziine)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; PROKOF'YEV, M.A.

Potential antimetabolites. Part 1: Synthesis of β-(4-hydroxy-6-methyl-2-pyrimidinyl-alanine. Zhur.ob.khim. 32 no.8:2431-2436 Ag '62.

(MIRA 15:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
    (Pyrimidinealanine) (Protein metabolism)

SHVACHKIN, Yu.P.; SYRTSOVA, A.L.; SAVEL'YEV V.L.; PROKOF'YEV, M.A.

Potential antimetabolites. Part 2: Preparation of
substituted α-(pyrimidyl-2-methyl)-α-aminomalonic
esters and a new synthesis of β-(4-oxy-6-methyl-2-pyrimidyl)
alanine. Zhur.ob.khim. 32 no.10:3144-3148 O '62. (MIRA 15:11)

1. Moskovskiy gosudarstvennyy universitet im.
M.V. Lomonosova.
(Malonic acid)
(Alanine)

L 12608-63   EWT(m)/BDS   RM

ACCESSION NR: AP3001610   S/0189/63/000/003/0082/0084

AUTHOR: Shvachkin, Yu. P.; Berestenko, M. K.; Mishin, G. P.   53

TITLE: Synthesis of uracil-4-acetates

SOURCE: Moscow. Universitet. Vestnik. Seriya 2. Khimiya, no. 3, 1963, 82-84

TOPIC TAGS: uracil, orotic acid, esterification, oleum

ABSTRACT: The paper describes the synthesis of various esters of uracil-4-acetic acid. Their synthesis takes place in the presence of 15% fuming sulfuric acid, using as issuing materials citric acid, urea, and various alcohols. While the methyl and ethyl esters were thus obtained by earlier workers, the authors synthesized a new series of uracil-4-acetic acid esters of the propyl-, butyl-, amyl-, and octyl-alcohols, and studied their yield and constants. All the esters were colorless crystalline substances with melting points ranging from 174 to 220C. The authors express their thanks to M. A. Prokof'yev for his attention and interest in their work. Orig. art.has: 1 picture, 1 formula, and 1 table.

ASSOCIATION: Moskovskiy universitet, kafedra organicheskoy khimii (Moscow University, Department of Organic Chemistry)

Card 1/2/

SHVACHKIN, Yu.P.; BERESTENKO, M.K.

Synthesis of pyrimidyl-4-alkanecarboxylic esters based on
nucleophilic substitution reactions. Vest.Mosk.un. Ser.2:Khim.
18 no.1:74-75 Ja-F '63.   (MIRA 16:5)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
               (Esters) (Substitution (Chemistry))

SHVACHKIN, Yu.P.; FILATOVA, M.P.; SYRTSOVA, L.A.

Synthesis of the pyrimidine analog of m-tyrosine. Vest.Mosk.un.-
Ser.2:Khim. 18 no.2:55-57 Mr-Ap '63.   (MIRA 16:5)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
                (Pyrimidinealanine) (Tyrosine)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.

Synthesis of β-(4-chloro-6- amino-2-pyrimidinyl)-alanine.
Vest. Mosk. un. Ser. 2: Khim. 18 no.3:80-81 My-Je '63.
(MIRA 16:6)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Pyrimidinealanine)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.

Synthesis of a pyrimidine analog of β -(2,4-dihydroxy-6-methylphenyl)-alanine. Vest.Mosk. un. Ser.2: Khim. 18 no.4:88-90 Jl-Ag '63.
(MIRA 16:9)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Alanine) (Pyrimidine)

SHVACHKIN, Yu.P.;KRIVTSOV, G.G.

Preparation of α -C^{14} -β-(4-hydroxy-6-methyl-2-pyrimidyl)-alanine.
Vest.Mosk. un. Ser.2: Khim. 18 no.4:91-92 Jl-Ag '63. (MIRA 16:9)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Alanine) (Pyramidine) (Carbon isotopes)

SHVACHKIN, Yu.P.; AZAROVA, M.T.; RAPANOVICH, I.I.

Interaction of uracil with derivatives of acrylic acid. Vest.
Mosk. un. Ser. 2: Khim. 18 no.5:68-69 S-O '63.   (MIRA 16:11)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

SHVACHKIN, Yu.P.; AZAROVA, M.T.

Potential metabolites. Part 4: Derivatives of 3-uracilacetic
acid. Zhur.ob.khim. 33 no.2:590-595 F '63.   (MIRA 16:2)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
            (Pyrimidineacetic acid)   (Antimetabolitis)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.

Potential antimetabolites. Part 5: Peptides of
β-(4 hydroxy-6-methyl-2-pyrimidyl)alanine. Zhur.ob.khim.
33 no.3:778-783 Mr '63.   (MIRA 16:3)

1. Moskovskiy gosudarstvennyy universitet imeni
M.V. Lomonosova.
            (Alanine)   (Peptides)
                      (Antimetabolites)

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.; FILATOVA, M.P.

Potential antimetabolites. Part 6: Synthesis of β-(4-hydroxy-2-pyrimidinyl)-alanine. Zhur. ob. khim. 33 no.8:2487-2493
Ag '63.
(MIRA 16:11)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.

SHVACHKIN, Yu.P.; BERESTENKO, M.K.

Potential antimetabolites. Part 9: Substituted pyrimidyl-4-alkanecarboxylic esters. Zhur.ob.khim. 33 no.10:3132-3135
O '63.   (MIRA 16:11)

1. Moskovskiy gosudarstvennyy universitet.

SHVACHKIN, Yu.P.; SYRTOVA, L.A.

Potential antimetabolites. Part 10: Preparation of
β-(5-[di(2-chloroethyl)amino]-2-methoxyphenyl) - α -D, L -alanine.
Zhur.ob.khim. 33 no.12:3805-3810 D '63.   (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SHVACHKIN, Yu.P.; NOVIKOVA, M.A.; REZHIKOVA, M.B.; PADYUKOVA, N.Sh.

New synthesis and feasibility of the fermentative activation of β-(4-hydroxy-2-pyrimidinyl)alanine. Zhur.ob.khim. 33 no.12:4022-4023 D '63.
(MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet i Institut khimii prirodnykh soyedineniy AN SSSR.

SHVACHKIN, Yu.P.; AZAROVA, M.T.

Potential antimetabolites. Part 11: New synthesis of willardiine.
Zhur.ob.khim. 34 no.2:407-411 F '64.   (MIRA 17:3)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.

SHVACHKIN, Yu.P.; BERESTENKO, M.K.; MISHIN, G.P.

Possibility and conditions of decarboxylation of uracil-4-
acetic acid. Zhur. ob.khim. 34 no. 5:1687-1688 My '64.
                                            (MIRA 17:7)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SHVACHKIN, Yu.P.; BER...NKO, M.K.

Synthesis of a pyrimidine analog of 3,5-dioxyphenylalanine.
Vest. Mosk. un. Ser.2:Khim. 19 no.1:79-81 Ja-F '64.
(MIRA 17:6)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

CHVACHKIN, Yu...; PROKOF'YEV, M.A.

Pyrimidines and amino acids: interconversions in biological
and chemical systems. Vest. Mosk. un. Ser. 2 Khim 19 no.2:3-15
Mr-Ap'64

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

SHVACHKIN, Yu. .; ET... , ...

Synthesis of pyrimidine analog of phenylalanine. Vest. Mosk.
un. Ser. 2 khim. 19 no.2:72-73 Mr-Ap'64   (MIRA 17:6)

1, Kafedra organicheskoy khimii Moskovskogo universiteta.

SHVACHKIN, Yu.P.; SYRTSOVA, L.A.

Potential antimetabolites. Part 12: Synthesis of

β-(2,4-dihydroxy-6-methyl-5-pyrimidinyl)alanine.

Zhur. ob. khim. 34 no.7:2159-2164 Jl '64   (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

SHVACHKIN, Yu.P.; KRIVTSOV, G.G.

Potential antimetabolites. Part 13: Synthesis and properties of
α -C^{14}- β-(4-hydroxy-6-methyl-2-pyramidinyl)-alanine. Zhur.
ob. khim. 34 no.7:2164-216?   Jl '64   (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.

SHVACHKIN, Yu.P.; AZAROVA, M.T.

Potential antimetabolites. Part 14:Pyrimidinyl-N-α-amino acids. Zhur. ob. khim. 34 no.7:2167-2173 Jl '64
(MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.

SHVACHKIN, Yu.P.; BERESTENKO, M.K.

Synthesis of lathyrine. Zhur. ob. khim. 34 no.10:3506-3507 O '64.
(MIRA 17:11)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.

SHVACHKIN, Yu.P.; VITOL, M.Ya.; SHPRUNKA, I.K.

Removal of glycine from reaction mixtures by a microbiological
method. Zhur. ob. khim. 34 no.10:3508-3509 O '64.

(MIRA 17:11)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.

SHVACHKIN, Yu.P.; AZAROVA, M.T.

Potential antimetabolites. Part 16: Reaction of citrulline with
cyanoacetate. Zhur. ob. khim. 35 no.3:563-570 Mr '65.
(MIRA 18:4)

1. Moskovskiy gosudarstvennyy universitet.

SHVACHKIN, Yu.I.: SHPRUNKA, T.K.; KAZAKOVA, G.V.

Synthesis of deuterated 2-thiouracils. Zhur. ob. khim. 34 no.11:
3846-3847 N '64   (MIRA 18:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

SHVACHKIN, Yu.P.; SHPRUNKA, I.K.

Synthesis of a pyrimidine analog of 2,4-dihydroxyphenylalanine.
Vest. Mosk. un. Ser. 2: Khim. 19 no.6:72-73 N-D '64.

(MIRA 18:3)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

L 10883-66   EWT(m)   RM

AUTHOR: Shvachkin. Yu. P.; Berestenko, M. K.; Mishin, G. P.

ORG: Department of Organic Chemistry, Moscow State University (Kafedra organicheskoy khimii Moskovskogo universiteta)

TITLE: Synthesis of Beta-(2,6-dihydroxy-5-methyl-4-pyrimidyl) alanine

TOPIC TAGS: amino acid, alanine, pyrimidine

ABSTRACT: The synthetic paths are as follows:
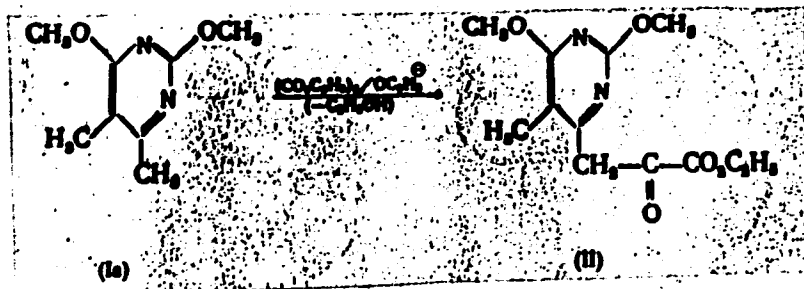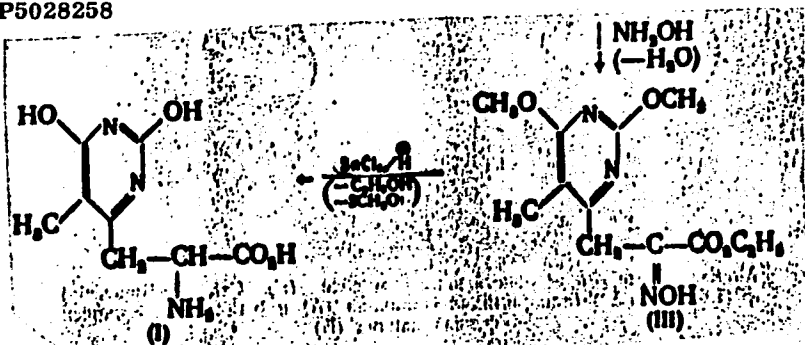
Card 1/3   UDC: 547.91/99

L 10883-66

ACC NR: AP5028258

It was found that β-(2,6-dihydroxy-5-methyl-4-pyrimidyl) alanine (I) can be easily prepared from 2,6-dimethoxy-4,5-dimethylpyrimidine (Ia), which in the presence of potassium alcoholate readily enters into a condensation reaction with diethyl oxalate, forming ethyl α-keto-β-(2,6-dimethoxy-5-methyl-4-pyrimidyl)propionate (II). When the latter reacts with hydroxylamine in an alcohol medium, it converts into ethyl α-oximino-β-(2,6-dimethoxy-5-methyl-4-pyrimidyl)propionate (III). The latter is easily converted into amino acid (I) by treating ester (III) with stannous chloride in HCl; in a single operation, the reduction of the ketoxime fragment, saponification of the ester group, and hydrolysis of ether bonds are thus accomplished. The new pyrimidyl amino acid (I) is a colorless substance with distinct amphoteric properties. It gives a positive color reaction (brownish-yellow) with ninhydrin. Orig. art. has: 1 figure and 1 table.

Card 2/3

L 10883-66

ACC NR: AP5028258   O

SUB CODE: 07 / SUBM DATE: 02Nov64

jw
Card 3/3

reaction of 2-thiouracil with acrylonitrile. Vest. Mosk. un. Ser. 2: Khim. 20 no.1:73-75 Ja-F '65.

(MIRA 18:3)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.

(MIRA 18:8)